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# **Physical Sciences Facility (PSF)**

## **Pacific Northwest National Laboratory**

### **Critical Decision 2 - Approve Performance Baseline**

Energy Systems Acquisition Advisory Board (ESAAB)  
June 2007

Chad Henderson, Federal Project Director

**DRAFT**

# Agenda

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- **Why Are We Here?**
- **Project Scope**
- **Summary Schedule**
- **Cost Estimate and Funding Profile**
- **Confidence in the Baseline**
- **Response to Direction from Previous ESAABs**
- **DOE Order 413.3A Prerequisites Met**
- **Conclusion and Recommendations**

# Why Are We Here?

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- Request approval of the Physical Sciences Facility (PSF) Project Performance Baseline
- Request to re-designate the PSF Project as a Non-Major System Project

## Project Related Decision

- Request Approval of the Business Case for two privately financed facilities
  - Biological Sciences Facility (BSF)
  - Computational Sciences Facility (CSF)

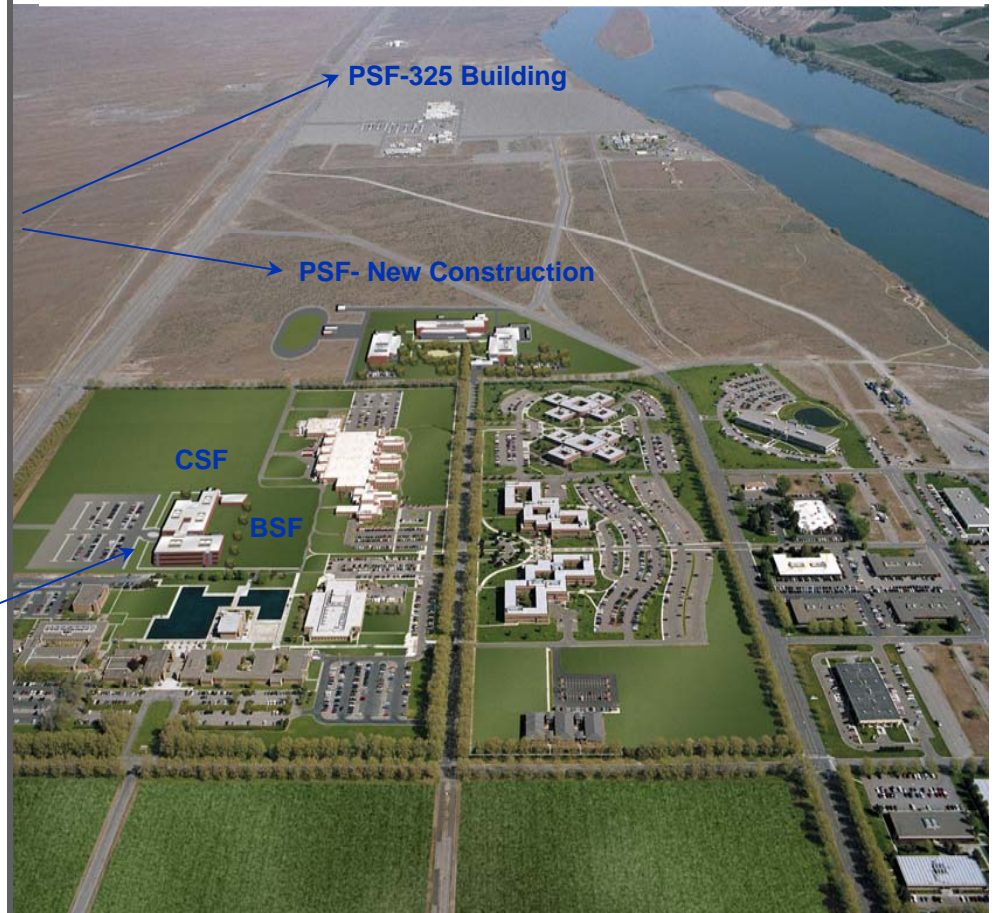
# CRL Scope Approved at CD-1R

## *10 capabilities retained; mixed-funding approach*

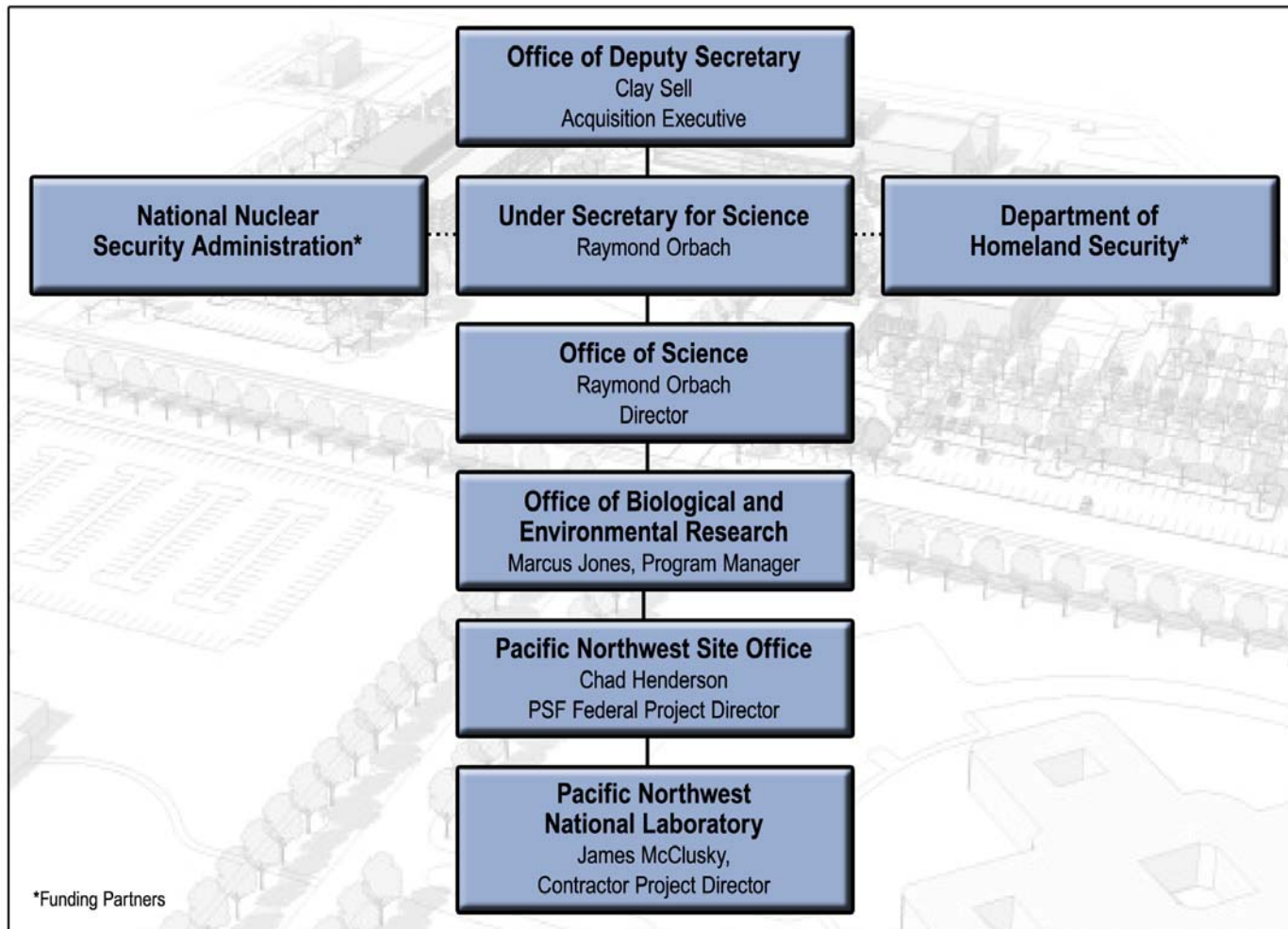
### Mission Critical Capabilities

- **PSF – New Construction**
    - ❑ Ultra-trace
    - ❑ Radiation Detection
    - ❑ Materials Science & Technology
    - ❑ Chemistry and Processing
  - **PSF - 325 Building**
    - ❑ Shielded Operations
    - ❑ Radiation Detection
    - ❑ Materials Science & Technology
    - ❑ Chemistry and Processing
  - **BSF - Systems Biology**
  - **CSF - Information Analytics**
- } 3<sup>rd</sup> Party
- **Other retained facilities** - Certification and Dosimetry, Subsurface Science, and Environmental Biomarkers

Physical Sciences Facility Line-item Construction Project  
Baseline Includes New Construction at the PNNL Site  
and Life-extension Upgrades of 325 Building



# Project Organization

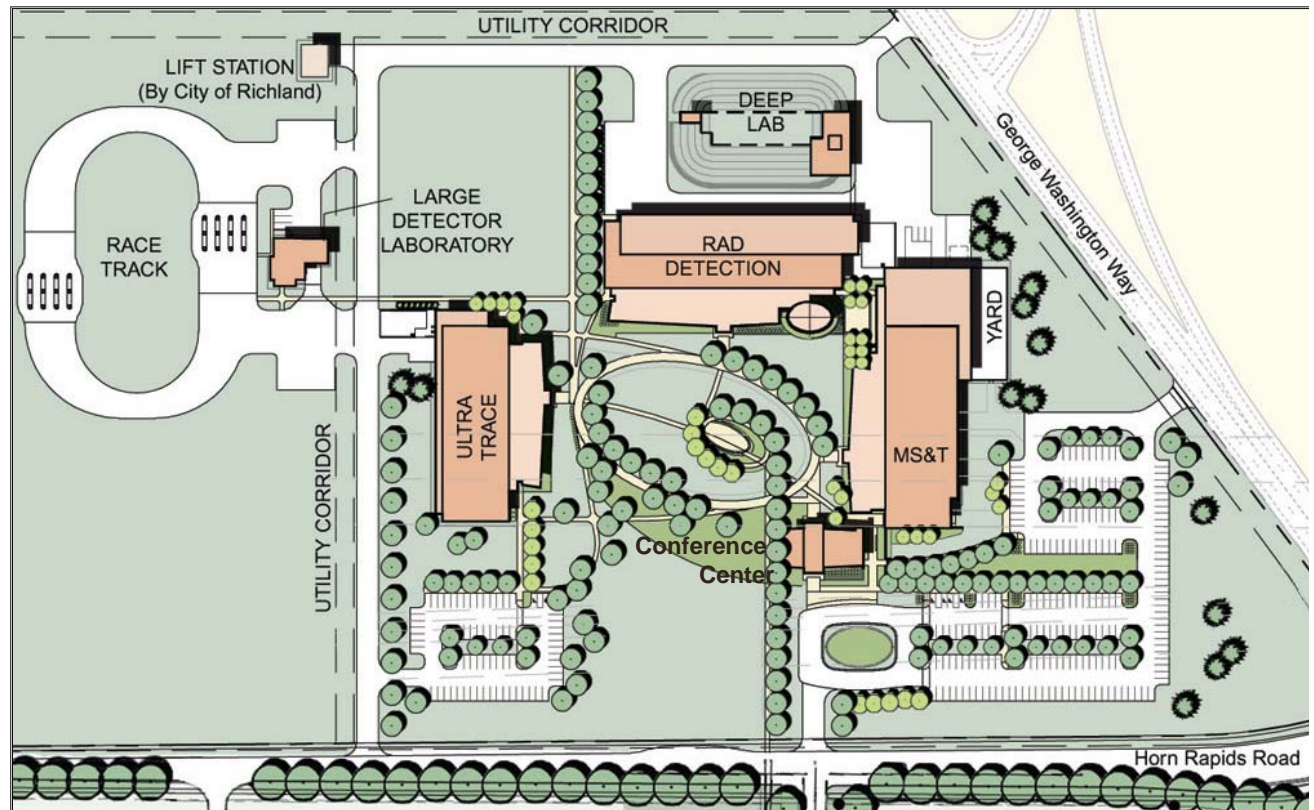




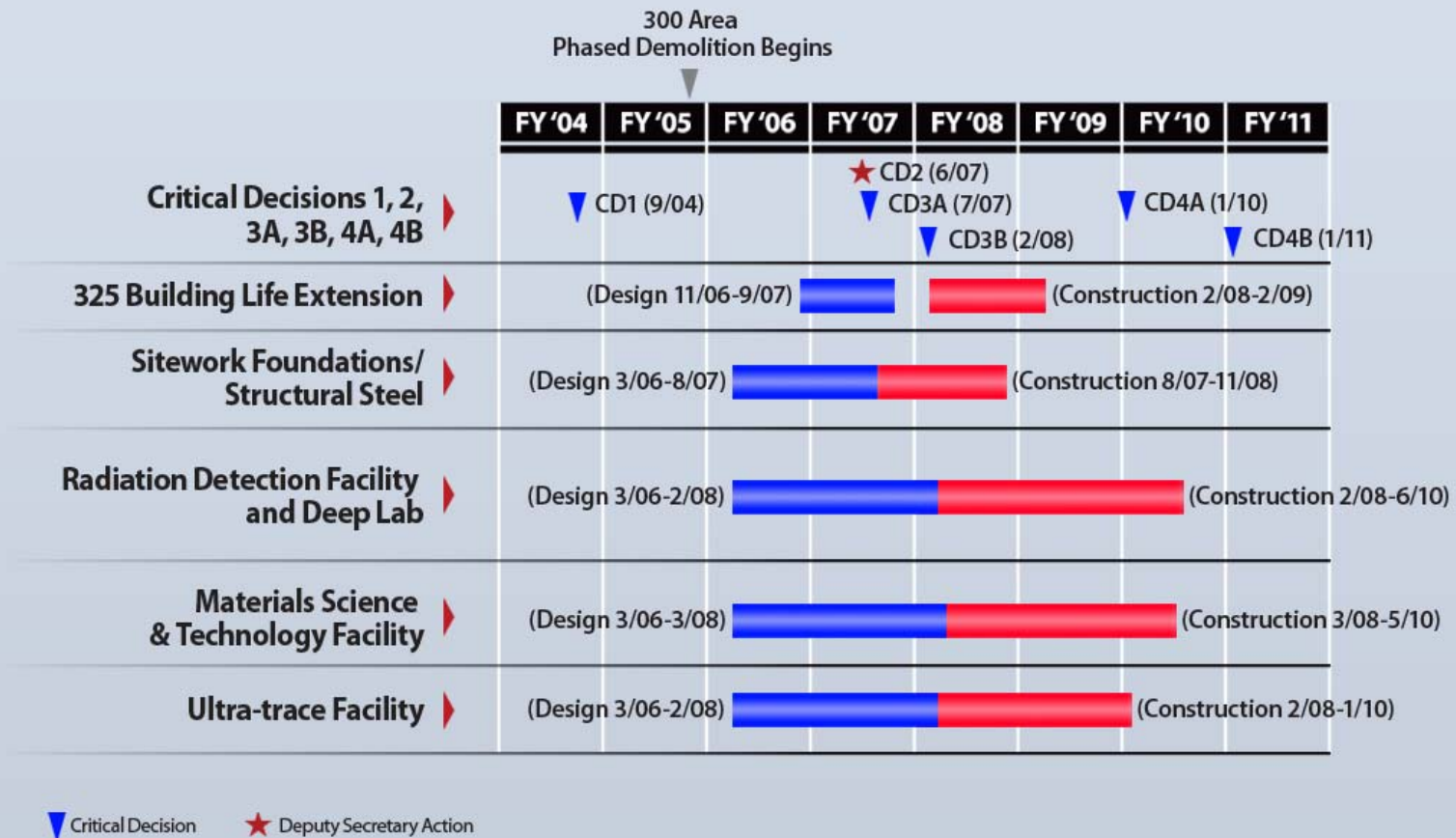
# Project Scope

- Design and construct new facilities on the PNNL Site
- Modernize 325 Building for a 20-year life extension and update the nuclear safety basis
- Startup new construction
- Operationally accept the nuclear safety updates for 325 Building

## PSF New Construction



# PSF Line Item Summary Schedule



➤ ***Your decision today is on the Critical Path!***

# Cost Estimate and Funding Profile

## Project Cost Estimate by WBS

WBS	Description	Budget (\$M)
1.1.1	Project Integration and Support	16.7
1.1.2	PSF New Facilities Design, Construction, and Startup	123.9
1.1.3	Building 325 Life Extension	32.9
	Other Project Costs (OPC)	11.8
	Total Estimated Cost	185.3
	Contingency	38.7
	Total Project Cost	224.0

22% of  
remaining  
work

## Project Funding Profile (\$M)

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total
TEC	0.986	6.960	17.820	19.920	58.834	77.211	19.138	9.005	209.874
OPC	0.850	5.000	0	0	1.545	4.257	2.464	0.011	14.127
TPC	1.836	11.960	17.820	19.920	60.379	81.468	21.602	9.016	224.000



# Confidence in the Baseline

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## Actions by the Project Team

- Effective changes made to DOE and Contractor project staffing
- Implemented sound risk management plan
- Completed “Risk Informed” process and independent review of 325 Building safety documentation by DOE Safety Basis Review Team
- Prepared independent cost estimate

## Actions by Independent Reviewers

- Conducted successful SC IPR's - January and April 2007
- Completed successful External Independent Review – May 2007
- Received Earned Value Management System certification – June 2007

# Responses to Direction from Previous ESAABs

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- **Approved alternative financing proposal**
- **Incorporated safety requirements into design and construction**
  - Prepared Project Integrated Safety Management Plan
  - Approved DOE Hazards Analysis Report - new construction
  - Approved DOE Safety Evaluation Report “like” document - 325 Building
- **Defined CD- 4 criteria and included in the baseline**

# DOE O 413.3A CD-2 Prerequisites Met

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- ✓ Performance Baseline
- ✓ Project Execution Plan
- ✓ Earned Value Management System
- ✓ Performance Baseline Validation
- ✓ External Independent Review
- ✓ Independent Cost Estimate
- ✓ Quality Assurance Program
- ✓ Preliminary Design
- ✓ Project Data Sheet
- ✓ Design Review
- ✓ Preliminary Safety Design Report
- ✓ Hazard Analysis Report
- ✓ Preliminary Security Vulnerability Assessment Report
- ✓ Preliminary Safety Evaluation Report
- ✓ Sustainability Report (LEED Certification)
- ✓ National Environmental Policy Act Documentation – FONSI approved 1/29/07

➤ CD2 ESAAB folder on the SharePoint Site

<https://spteam1.pnl.gov/sites/crl/Web/ESAAB.aspx>

# Conclusion

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**The performance baseline is well defined  
and ready for approval**

# Recommendations

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- **Approve the PSF Project Performance Baseline**
- **Approve the Project Execution Plan**
- **Delegate CD-3 and CD-4 authority to the Undersecretary for Science by re-designating the PSF Project as a Non-Major System Project**
- **Approve the Business Case for privately financed facilities**